

JC07 Rec'd PCT/PTO 26 FEB 2002

FORM PTO-1390 (REV. 12-2001)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER <b>BKG-P-02-001</b>	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO (If known, see 37 CFR 1.5) <b>10/069911</b>	
INTERNATIONAL APPLICATION NO. <b>PCT/GB00/03307</b>		INTERNATIONAL FILING DATE <b>25 August 2000</b>		PRIORITY DATE CLAIMED <b>26 August 1999</b>	
TITLE OF INVENTION <b>"WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS"</b>					
APPLICANT(S) FOR DO/EO/US <b>John Misselbrook</b>					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371. 3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below. 4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). a. <input type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) a. <input checked="" type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). <b>Items 11 to 20 below concern document(s) or information included:</b> 11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment. 14. <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment. 15. <input type="checkbox"/> A substitute specification. 16. <input type="checkbox"/> A change of power of attorney and/or address letter. 17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825. 18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 20. <input checked="" type="checkbox"/> Other items or information: <b>Small Entity Statement</b>					

U.S. APPLICATION NO. <b>10/069911</b>		INTERNATIONAL APPLICATION NO. <b>PCT/GB00/03307</b>		ATTORNEY'S DOCKET NUMBER <b>BKG-P-02-001</b>	
<b>21. <input checked="" type="checkbox"/> The following fees are submitted:</b> <b>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO..... <b>\$1040.00</b> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... <b>\$890.00</b> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... <b>\$740.00</b> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... <b>\$710.00</b> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) ..... <b>\$100.00</b> <b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				<b>CALCULATIONS PTO USE ONLY</b>	
Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				<b>\$ 890.00</b>	
CLAIMS				<b>\$ 130.00</b>	
Total claims					
Independent claims					
MULTIPLE DEPENDENT CLAIM(S) (if applicable)					
<b>TOTAL OF ABOVE CALCULATIONS =</b>				<b>\$ 1110.00</b>	
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				<b>\$ -555.00</b>	
<b>SUBTOTAL =</b>				<b>\$ 555.00</b>	
Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				<b>\$ 0.00</b>	
<b>TOTAL NATIONAL FEE =</b>				<b>\$ 555.00</b>	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). <b>\$40.00</b> per property +				<b>\$ 0.00</b>	
<b>TOTAL FEES ENCLOSED =</b>				<b>\$ 555.00</b>	
				<b>Amount to be refunded:</b>	
				<b>charged:</b>	
a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>555.00</u> to cover the above fees is enclosed.					
b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.					
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>50-0545</u> . A duplicate copy of this sheet is enclosed.					
d. <input type="checkbox"/> Fees are to be charged to a credit card. <b>WARNING:</b> Information on this form may become public. <b>Credit card information should not be included on this form.</b> Provide credit card information and authorization on PTO-2038.					
<b>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.</b>					
SEND ALL CORRESPONDENCE TO: Brian M. Mattson Patents+TMS A Professional Corporation 1914 North Milwaukee Avenue Chicago, IL 60647 Tel.: 773/772-6009					
				<b>SIGNATURE</b> <u>BRIAN M. MATTSON</u> <b>NAME</b> <u>35,018</u> <b>REGISTRATION NUMBER</b>	

IN THE UNITED STATES ELECTED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY

**PRELIMINARY AMENDMENT**

APPLICANT: Misselbrook ATTY. DKT NO.: BKG-P-02-001  
SERIAL NO.: Unassigned GROUP ART UNIT: Unassigned  
DATE FILED: February 26, 2002 EXAMINER: Unassigned  
INVENTION: "WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS"

Asst. Commissioner for Patents  
Washington, DC 20231

S I R:

Please amend the above-identified international application before entry into the national stage before the U.S. Patent and Trademark Office under 35 U.S.C. §371 as follows:

**IN THE CLAIMS:**

Please replace Claim 2 as follows:

2. A composition according to claim 1 in which the primary active ingredient is a low use rate active ingredient.

Please replace Claim 3 as follows:

3. A composition according to Claim 1 in which the primary active ingredient is selected from bensulfuron-methyl, chlorsulfuron, cinosulfuron, metsulfuron-methyl, nicosulfuron, pirimisulfuron-methyl, rimsulfuron, sulfometuron-methyl, thiefensulfuron-methyl, and tirflusulfuron-methyl.

Please replace Claim 4 as follows:

4. A composition according to Claim 1 in which the primary active ingredient is present at a level of less than 30% by weight of the composition.

Please replace Claim 5 as follows:

5. A composition according to Claim 1 in which the primary

active ingredient comprises bensulfuron-methyl and/or chlorsulfuron.

Please replace Claim 7 as follows:

7. A composition according to Claim 1 further comprising a high use rate secondary active ingredient.

Please replace Claim 9 as follows:

9. A composition according to Claim 7 in which the secondary active ingredient is present at a level of at least 30%.

Please replace Claim 10 as follows:

10. A composition according to Claim 7 in which the high use rate secondary active ingredient is selected from abamectin, atrazine, benomylbentazone, bifernox, bromoxynil, captan, carbendazim, chloridazon, chlorothalonil, chlortoluron, larnbda-cyhalothrin, cyhexatin, cymoxynil, alpha-cypermethrin, deltamethrin, dimethornorph, diuron, ethofurmesate, fibronil, flurtamone, glyphosate, imazamethabenz-methyl, imazapyr, imazethapyr, imadacloprid, isoproturon, linuron, mancozeb, maneb, metarnitron, methiocarb, metribuzin, milbectin, oxadixyl, oxyfluorfen, phenmedipham, propanil, propyzamide, simazine, thifensulfuron-methyl and thiram.

Please replace Claim 13 as follows:

13. A composition according to Claim 1 in which the dispersing agent comprises an anionic and/or nonionic surfactant.

Please replace Claim 15 as follows:

15. A composition according to Claim 13 in which the weight ratio of dispersing agent to the low use rate primary active ingredient in the composition is 0.1 to 10:1.

Please replace Claim 17 as follows:

17. A composition according to Claim 2 further comprising as the low use rate active ingredient, bensulfuron-methyl and

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

19. A composition according to Claim 1 being used as an agrochemical.

23. A method according to Claim 20 in which the composition comprises, as a secondary active ingredient, propanil and the secondary active is applied to the plant or the locus of the plant at a rate of use of less than 7000g/hectare.

24. A process for the production of a composition according to Claim 1 comprising preparing a wetted mix in the form of a free-flowing powder comprising a primary active ingredient and a dispersing agent and optionally other components wherein at least one component of the composition is liquid and extruding the mix to form an extrudate and drying the extrudate to form granules.

The foregoing amendments place the application into a form for prosecution before the U.S. Patent and Trademark Office under 35 U.S.C. §371. Accordingly, entry of these amendments before examination on the merits is hereby requested.



**CERTIFICATE OF MAILING**

I hereby certify that this **Preliminary Amendment** is being deposited with the United States Postal Service as Express Mail in an envelope addressed to the Asst. Commissioner for Patents, Washington, D.C. 20231 on February 26, 2002.

A handwritten signature in black ink, appearing to read 'B. M. Mattson', written over a horizontal line.

Brian M. Mattson (Reg. No. 35,018)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 2, as amended, follows:

2. (Once Amended) A composition according to claim 1 in which the primary active ingredient is a low use rate active ingredient.

Claim 3, as amended, follows:

3. (Once Amended) A composition according to [any one of the preceding claims] Claim 1 in which the primary active ingredient is selected from bensulfuron-methyl, chlorsulfuron, cinosulfuron, metsulfuron-methyl, nicosulfuron, pirimisulfuron-methyl, rimsulfuron, sulfometuron-methyl, thiefensulfuron-methyl, and tirflusulfuron-methyl.

Claim 4, as amended, follows:

4. (Once Amended) A composition according to [any one of the preceding claims] Claim 1 in which the primary active ingredient is present at a level of less than 30% by weight of the composition.

Claim 5, as amended, follows:

5. (Once Amended) A composition according to [any one of the preceding claims] Claim 1 in which the primary active ingredient comprises bensulfuron-methyl and/or chlorsulfuron.

Claim 7, as amended, follows:

7. (Once Amended) A composition according to [any one of the preceding claims] Claim 1 further comprising a high use rate secondary active ingredient.

Claim 9, as amended, follows:

9. A composition according to [any one of claims 7 to 9] Claim 7 in which the secondary active ingredient is present at





one of the preceding claims] Claim 1 being used as an agrochemical.

Claim 23, as amended, follows:

23. (Once Amended) A method according to [any one of claims 20 to 22] Claim 20 in which the composition comprises, as a secondary active ingredient, propanil and the secondary active is applied to the plant or the locus of the plant at a rate of use of less than 7000g/hectare.

Claim 24, as amended, follows:

24. (Once Amended) A process for the production of a composition according to [any one of claims 1 to 18] Claim 1 comprising preparing a wetted mix in the form of a free-flowing powder comprising a primary active ingredient and a dispersing agent and optionally other components wherein at least one component of the composition is liquid and extruding the mix to form an extrudate and drying the extrudate to form granules.

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Rec'd PCT/PTO & JUL 2002

IN THE UNITED STATES ELECTED OFFICE  
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY

SECOND PRELIMINARY AMENDMENT

APPLICANT: Misselbrook ATTY. DKT NO.: BKG-P-02-001  
SERIAL NO.: 10/069,911 GROUP ART UNIT: Unassigned  
DATE FILED: February 26, 2002 EXAMINER: Unassigned  
INVENTION: "WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS"

Asst. Commissioner for Patents  
Box PCT  
Washington, DC 20231

S I R:

Prior to examination of this application, please amend the above-identified international application before the U.S. Patent and Trademark Office under 35 U.S.C. §371 as follows:

IN THE CLAIMS:

Please replace Claim 1 as follows:

1. A water dispersible agrochemical composition comprising a primary agrochemical active ingredient at a level of less than 50% by weight of the composition and a dispersing agent the composition being obtainable by a process comprising preparing a wetted mix in the form of a free-flowing powder comprising the primary active ingredient and the dispersing agent and optionally other components wherein at least one of the dispersing agent and optional other component is liquid and extruding the mix to form granules.

Please add Claim 26 as follows:

26. A composition according to Claim 1 wherein the primary agrochemical active comprises a sulfonyl urea.

Please add Claim 27 as follows:

27. A composition according to Claim 1 wherein the liquid component in the wetted premix comprises water.

Please add Claim 28 as follows:

28. A composition according to Claim 1 wherein the extrudate is dried to form granules.

Please add Claim 29 as follows:

29. A water dispersible agrochemical composition comprising a primary agrochemical active ingredient comprising a sulfonyl urea at a level of less than 10% by weight of the composition and a dispersing agent the composition being obtainable by a process comprising preparing a wetted mix in the form of a free-flowing powder comprising the primary active ingredient and the dispersing agent and water, extruding the mix and drying the extrudate to form granules.

Please add Claim 30 as follows:

30. A composition according to Claim 29 wherein the sulfonyl urea comprises bensulfuron-methyl and/or chlorsulfuron.

Please add Claim 31 as follows:

31. A composition according to Claim 29 which further comprises a secondary active ingredient comprising propanil at a level of at least 50% by weight of the composition

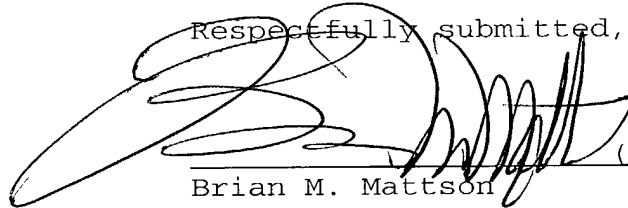
Please add Claim 32 as follows:

32. A composition according to Claim 29 in which the dispersing agent is selected from alkali metal salts of lignosulphonates, naphthalene sulphonate formaldehyde condensates, tristyrylphenol ethoxylate phosphate esters, aliphatic alcohol ethoxylates, alkylphenol ethoxylates, ethylene oxide/propylene oxide (EO-PO) block copolymers, "comb" graft copolymers and polyvinyl alcohol-vinyl acetate copolymers.

**REMARKS**

The foregoing amendments add new Claims 26-32 and place the application into a form for prosecution before the U.S. Patent and Trademark Office under 35 U.S.C. §371. Accordingly, entry of these new claims prior to examination on the merits is hereby requested.

Respectfully submitted,

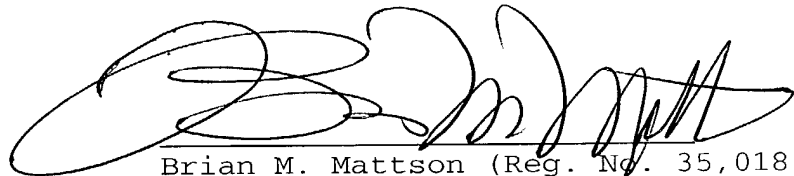


(Reg. No. 35,018)

Brian M. Mattson  
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A Professional Corporation  
1914 North Milwaukee Avenue  
Chicago, IL 60647  
773/772-6009  
Attorney for Applicant

**CERTIFICATE OF MAILING**

I hereby certify that this **Second Preliminary Amendment** is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Asst. Commissioner for Patents, Box PCT, Washington, D.C. 20231 on June 29, 2002.



Brian M. Mattson (Reg. No. 35,018)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 1, as amended, follows:

1. (Twice Amended) A water dispersible agrochemiccal composition comprising a primary agrochemical active ingredient [comprising a sulfonyl urea] at a level of less than 50% by weight of the composition and a dispersing agent [wherein at least one component of the composition is liquid] the composition being obtainable by a process comprising preparing a wetted mix in the form of a free-flowing powder comprising the primary active ingredient and the dispersing agent and optionally other components wherein at least one of the dispersing agent and optional other component is liquid and extruding the mix [to form an extrudate and drying the extrudate] to form granules.

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WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS

The invention relates to novel chemical compositions in particular, compositions of biologically active agents and their use. The invention is more particularly concerned with granular compositions of low dose-rate agrochemicals, for example pesticides, suitably prepared by an extrusion process, which deliver the active ingredient of the composition efficiently to the substrate, for example a crop, which is to be treated.

The advantages of dispersible granule formulations of pesticides are known and include their ease of handling and reduced worker exposure compared to powder or liquid formulations. G. A. Bell, "Chemistry and Technology of Agrochemical Formulations", Edited by D. A. Knowles (Kluwer, 1998), pages 80-114, describes a range of dispersible granule types and processes for their manufacture

Dispersible granules may be prepared by extrusion. US 3,954,439 discloses granular compositions of a herbicidal agent and one or more surfactants and processes for the production of such compositions. The process described in US 3,954,439 is applicable to those herbicides which are substantially insoluble in water. This patent states that it is obviously desirable that the granules should have the highest possible content of active herbicidal material. This patent further states that the process is preferably carried out so as to give granules containing at least 50% of active herbicide material and that it is more preferable that the granules should contain more than this, that is at least 80% and even up to 95%. The patent also teaches that it is obviously important to keep the surfactant content down to a minimum, the total amount of surfactant preferably being from 5 to 15%.

US 5,872,078 relates to dry, water soluble and/or water dispersible, agriculturally acceptable herbicidal compositions containing N-phosphonomethylglycerine or acceptable water-soluble salt thereof. The composition may comprise further optional ingredients, one of which may be a co-herbicide. A large number of co-herbicides are listed including sulfonylureas such as those available under the trade names Ally, Classic, Oust, Glean and mixtures thereof. A liquid surfactant is added

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to this mixture and extrusion granulation may be used to process the compositions described to form granules.

Improved delivery and bioavailability of the active ingredient in agrochemical compositions, especially of water insoluble actives for example sulphonyl ureas, to achieve a desired agrochemical effect is desirable. It is also desirable to achieve this effect in as cost effective manner as possible and conventionally this has been achieved by including as high a level of active ingredient as possible in a formulated composition.

We have now surprisingly found that a composition containing a lower level of a primary active ingredient than conventionally employed in compositions containing the same ingredient, together with a suitable dispersing agent may confer enhanced delivery of the primary active ingredient to the crop to be treated. The invention is particularly applicable to a low use rate agrochemical for instance a pesticide, and especially a water-insoluble agrochemical. Furthermore, as this enhanced effect may be achieved at a lower level of active ingredient in the composition, the composition may include additional materials in the remaining "formulation space" to provide additional effects

Accordingly, a first aspect of the invention provides an agrochemical composition comprising a primary agrochemical active ingredient, preferably a low use rate active ingredient, at a level of less than 50% by weight of the composition and a dispersing agent, preferably a nonionic and/or anionic surfactant(s)

The compositions according to the first aspect of the invention provide surprisingly beneficial bioavailability of the active for instance by making a larger proportion of the active biologically available in a liquid carrier, for example water, with which the composition is mixed in use than a known composition having a high level of active. The compositions disperse rapidly in the liquid carrier to form stable suspensions of the active material(s) and subsequently dissolve at a rate and to an extent higher than that achieved by conventional compositions containing the same ingredients. This property provides enhanced efficacy of the agrochemicals with attendant reduced crop damage. This enhanced bioavailability means that a given agrochemical effect may be obtained using a lower



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total amount of agrochemical active thus providing environmental benefits through lower use of agrochemicals

Further, as the concentration of the active is lower than conventionally employed, there is a reduced risk that some of the active will not be dispersed or dissolve in the liquid carrier. Hence the risk of poor dispersion or dissolution of the active in a liquid carrier leading to high localised concentrations of the active penetrating to the crop especially the roots of plants and possibly damaging the crop is reduced

A further advantage is that the lower level of primary active ingredient provides enhanced flexibility in formulating a composition as compared to conventional compositions employing high levels of active. Thus, the formulator may include a secondary active ingredient or other materials as desired in the composition to provide an optimum effect or balance of properties.

It has also been surprisingly found that when low use-rate pesticides, such as water-insoluble compounds including sulfonyl ureas, for example as described in US 5,872,078, are employed as the primary active ingredient with a secondary high rate use pesticide and a suitable dispersing agent at the required level, the rate and extent of solubility and thus the bioavailability, of the primary active or both the actives may be increased as compared to granules containing the equivalent amount of each material alone. Optimally, the primary and secondary actives are intimately mixed in suitable proportions. Suitably, optional conventional other ingredients such as one or more additional surfactants are included in the formulation and the ingredients are processed into a suitable form, for example water-dispersible granules.

Accordingly the invention also provides in a preferred embodiment an agrochemical composition comprising as a primary active ingredient, a low use rate agrochemical active ingredient, at a level of less than 50% by weight of the composition and a secondary active ingredient, preferably a high use rate active ingredient, and a dispersing agent, preferably an anionic and/or nonionic surfactant.

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In addition to the advantages referred to above for composition according to the invention, the compositions provide at least an enhanced effect as regards the primary active and suitably an effect greater than the combined additive affect of both the primary and secondary active is observed where the composition contains a primary and secondary active.

The term "low use rate" active denotes those agrochemical actives which typically are applied at a rate of less than 100g/hectare and the term "high use rate" active denotes those agrochemical actives which typically are applied at a rate of more than 1000g/hectare.

The compositions of the present invention result in the individual components being used at lower rates and with less phytotoxicity than conventional compositions of the said active materials, against a wide range of pests and diseases.

The level of primary active ingredient is suitably selected according to the particular compound to be used but is preferably less than 30% by weight of the composition, especially in the case of a low use rate active. For example, chlorsulfuron may suitably be employed at a level of less than 30%, for example 25% by weight of the composition. In a preferred embodiment, the primary active ingredient, for example bensulfuron, is present at a level of less than 10% and more preferably less than 2% by weight of the composition. In an especially preferred embodiment the primary active is present at a level of less than 1%. Suitably, the composition will contain the primary active at a level at which, on mixing with a liquid carrier, it provides a concentration of active which will provide a beneficial effect in treating crops. This level may suitably be at 0.05% but is preferably at least 0.1% and desirably at least 0.2% by weight of the composition although the precise level may be adjusted according to the particular application and the particular primary active present in the composition.

Where a second active is employed, it is suitably present at a level greater than the level of the primary active ingredient. In a preferred embodiment the secondary active is present at a level of at least 30%, more preferably at least 50%, optimally at least 65%, for example 75% by weight of the composition

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The invention comprises a dry, free-flowing, dustless and rapidly dispersing granular formulation containing a low use rate pesticide or mixture of pesticides together with an additional high use rate pesticide. The terms composition and formulation are used herein to have the same meaning.

A suitable dispersing agent(s) is/are incorporated into the formulation at a specific ratio so as to enable the rapid dispersion and subsequent dissolution of the low use rate and high use rate active material upon dilution and subsequent application. Suitably, the weight ratio of dispersing agent to the low use rate primary active ingredient in the composition is 0.1 to 10:1, preferably 0.4 to 6:1, for example about 4:1 and about 5:1.

The invention is particularly suitable for, but not limited to, such low use-rate pesticides as: Abamectin, imidazolinone, azoxystrobin, bensulfuron-methyl, carfentrazone-ethyl, chlorsulfuron, cinosulfuron, clodinafop, clopyralid, lambda-cyhalothrin, deltamethrin, diflufenican, emamectin benzoate, fibronil, flurtamone, imazamethabenz-methyl, imazapyr, imazethapyr, imadacloprid, metsulfuron-methyl, milbectin, nicosulfuron, pirimisulfuron-methyl, rimsulfuron, sulfometuron-methyl, thifensulfuron-methyl, tribenuron-methyl, and tirflusulfuron-methyl. Preferably the low use rate pesticide is a sulfonyl urea.

Suitable high use rate pesticides include: Abamectin, atrazine, benomylbentazone, bifenoxy, bromoxynil, captan, carbendazim, chloridazon, chlorothalonil, chlortoluron, lambda-cyhalothrin, cyhexatin, cymoxynil, alpha-cypermethrin, deltamethrin, dimethomorph, diuron, ethofumesate, fibronil, flurtamone, glyphosate, imazamethabenz-methyl, imazapyr, imazethapyr, imadacloprid, isoproturon, linuron, mancozeb, maneb, metamitron, methiocarb, metribuzin, milbectin, oxadixyl, oxyfluorfen, phenmedipham, propanil, propyzamide, simazine, thifensulfuron-methyl and thiram.

In an especially preferred embodiment, the low use rate pesticide comprises bensulfuron-methyl and the high use rate pesticide comprises propanil.

In a preferred embodiment, the dispersing agent comprises a surfactant with nonionic surfactants and especially anionic surfactants being preferred. Examples of suitable dispersing

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agents include alkali metal, preferably sodium salts of lignosulphonates, naphthalene sulphonate formaldehyde condensates, tristyrylphenol ethoxylate phosphate esters, aliphatic alcohol ethoxylates, alkylphenol ethoxylates, ethylene oxide/propylene oxide (EO-PO) block copolymers, "comb" graft copolymers and polyvinyl alcohol-vinyl acetate copolymers. Other dispersing agents known in the art may be employed as desired.

In addition to the dispersing agent, other components may be present in the composition for example a wetting agent. Suitable wetting agents include: alkali metal salts of alkylaryl sulphonates, alkyl aryl sulposuccinates and alkyl sulphates, preferably as the sodium salt. Other wetting agents, and other excipients known to those skilled in the art may be employed as desired including disintegrants for example: Bentonite, modified starch and polyvinyl pyrrolidone; stabilisers, for example citric acid, polyethylene glycol and butylated hydroxy toluene; and fillers, for example, starch, lactose, china clay, sucrose and kaolin; and flow-aids.

The granular compositions are preferably prepared by the method described in PCT application PCT/GB00/00163 the contents of which are hereby incorporated by reference. Suitably the process comprises, preparing a mix in the form of a free-flowing powder, preferably a homogeneous powder, comprising the primary active ingredient and a dispersing agent and optionally other components, preferably without forming a paste, and extruding the pre-mix in an extruder, for example a low pressure extruder to form the granules. A pre-mix optionally containing the secondary active ingredient may be mixed with the dispersing agent and the primary active ingredient to form the mix for extrusion. The dispersing agent may be liquid in which case an additional liquid component is not required although a further liquid component may be included as desired.

Suitable apparatus for the blending step(s) include a low-shear, high intensity blender such as a Lodge Ploughshare mixer, ribbon, Y-cone, double cone or trough blender, so that a free-flowing powder is formed. The mix is fed directly or indirectly into a suitable low-pressure extruder, such as that described in WO 96/26828, so that the premix is compacted against the apertures in the screen and forced through.

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In a preferred embodiment, the composition of the mix and the extruder settings are such that the formation of a paste before extrusion is avoided and the material being processed remains a free flowing particulate material during the formation of the pre-mix. In particular, the material optimally does not form a paste prior to extrusion. However, as the composition may contain one or more liquid components, it may be wet or dry provided that it remains free-flowing and particulate during the process. In this context, a paste may be considered as a mass of material, for example an agglomerate, which contains sufficient liquid or is at such a temperature that the particulate material being processed forms into an agglomerate which is mouldable or deformable and which is not free-flowing. Thus, a paste does not disintegrate into finer particles on application of shear, for example by rubbing between fingers, but rather remains as an agglomerated mass and the shear acts to mould or deform the agglomerate.

If desired, the components of the composition, either in sequence, all together or some in sequence and others together are first mixed, for example in a blender so that a uniform blend is obtained which is then passed through a suitable milling system such as an air mill, pin mill or air-swept impact mill so that a fine powder (the pre-mix) comprising an average particle size of 0.5 to 20 microns, or more preferably between 0.5 to 5 microns is obtained. The powder thus obtained is suitably agglomerated, so that uniform, dust-free granules are obtained, preferably by the process described in PCT/GB00/00163. This preferred method involves the extrusion of the wetted powder which is then in the form of a freely flowing homogeneous powder, in a low temperature, low pressure extruder, for example as described in EP-A-812256.

Where present, the low use rate and high use rate agrochemicals may be combined in the formation of the dry pre-mix with the other formulation ingredients for example dispersing agents or alternatively the pre-mix may be prepared with one of the agrochemicals and the other added to the milled pre-mix. This alternative approach is preferred when the high use rate pesticide is propanil which is suitably incorporated in the dry pre-mix, and the low use rate pesticide is then added to the pre-mix and blended with it prior to granulation.

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In a second aspect, the invention provides a method of treating a plant by applying a herbicidally effective amount of a composition according to the present invention to the plant or to the locus of the plant.

The present invention enables the composition of the invention to be used at a lower rate of use (mass of composition / unit area, typically grammes per hectare) to achieve a given effect than known compositions. Suitably the agrochemical active is applied to the plant or locus of the plant at a rate of use of less than 75%, more preferably less than 50% of the conventional rate of use for the active in commercially available compositions.

In a preferred embodiment, a composition comprising a sulphonyl urea low use rate active for example bensulfuron, is applied in use at a rate of use of less than 50 g/hectare, especially less than 30g/hectare and optimally less than 20 g/hectare. Typically, a commercially available composition containing in excess of 50% by weight of the composition of bensulfuron-methyl may be employed at a rate of use of 60g/hectare or more. In another preferred embodiment, the composition comprises a high use rate secondary active comprising propanil in addition to a sulphonyl urea active, for example bensulfuron, and suitably the secondary active is applied in use at a rate of less than 7000g/hectare, preferably less than 5000g/hectare and especially at a rate of less than 3200g/hectare

Where the plant is a weed, suitably, the treatment is such as to control or kill the weed. Generally, the composition is applied to the plant or its locus by means of a liquid carrier, typically water, with which the composition is mixed prior to application. If desired, the composition may be mixed with a liquid carrier to form a concentrate suitable for subsequent mixing with a liquid carrier. The application of the composition to the plant or its locus in solid or concentrate form especially where water is present in the vicinity of the plant through natural precipitation is also within the ambit of the invention.

In water, suitably the composition is diluted for use to a level of 10 to 500 mg/l and preferably 20 to 300mg/l. The dilution is suitably selected according to the composition used, the type of application, the state of growth of the plants to be treated and other factors known to those skilled in the art.

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In a third aspect, the invention provides for use of a composition according to the invention as an agrochemical, for example a low use rate herbicide.

This invention relates to novel compositions and to methods of treating plants, for example killing or controlling weeds by applying a reduced amount of the active ingredient(s), suitably diluted in water, than that normally recommended for such active(s) against such weeds. In addition the invention allows for the avoidance of subsequent applications of the said actives, thus further reducing the amount of pesticide used.

The following examples illustrate the invention in a non-limiting manner.

#### Example 1

##### Chlorsulfuron 25 WG

Ingredient	Trade name	% w/w
Chlorsulfuron technical (95%)	(technical a.i.)	26.32
Sodium lignosulfonate	Ultrazine NA	12.50
Dodedyl benzene sulphonate, Sodium salt	Arylan SX85	5.00
Lactose	Lactose	56.18

#### Method

The chlorsulfuron technical was airmilled using a Gem-T airmill before combining with other components. The technical, Ultrazine and Arylan components were blended until uniform in a high speed blender. The lactose was then added and the formulation blended for a further 15 seconds. 12% distilled water was added whilst blending. The wetted premix (free flowing powder) was fed to a basket extruder as described in EP-A-812256 through a 1mm screen. A compacted extrudate was obtained and the resulting granules dried at 60C for 8 minutes. The dried granules were then sieved through 2 mm and 500 micron sieves.





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determine the active concentration using a HPLC method. The theoretical concentration assuming 100% solubility was calculated using an assay obtained using the HPLC.

The following data was obtained:

Formulation	Product	Dilution rate (mgs a.i. /L)	Type of water used to dilute granules	% active added to water that dissolved after 5 minutes
Example 1	25 WG	69	Distilled	98
Comparative Example A	75 WG	72	Distilled	95
Glean (Du Pont)	75 WG	72	Distilled	67
Airmilled technical	-	91	Distilled	<2

#### Conclusions

Both the 75 and 25 extruded WG formulations have a significantly higher solubility in distilled water compared to the commercial product. The technical is not readily soluble in distilled water at this temperature.

#### Example 2

##### Bensulfuron-methyl 1 WG

Ingredient	Trade name	% w/w
Bensulfuron methyl technical (95%)	(technical a.i.)	1.05
Naphthalene sulfonic acid	Galoryl DT505	12.70
Formaldehyde condensate, sodium salt		
Di isopropyl naphthalene sulfonate, sodium salt	Galoryl MT704	1.00
Lactose	Lactose	85.25

#### Method



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Londax	60 WG	75	Tap	19
Comparative Example B	60 WG	73	Tap	46
Example 2	1 WG	240	Tap	71

Example 3Propanil and bensulfuron-methyl combined WG (75% propanil and 0.75% bensulfuron)

## Propanil Premix

A premix of Propanil was prepared as follows:

Ingredient	Trade name	% w/w
Propanil technical (97.0% a.i.)	Technical	82.47
Starch	Paselli	1.00
Nonionic surfactant and sodium Lignosulphonate blend	Stepsperse DF 500	5.00
Modified sodium lignosulphonate	Ufoxane 3A	5.00
Hydrated aluminium silicate	China Clay	to 1.00

The ingredients were blended in a medium shear, high speed blender for 5 minutes until uniform. The resulting mixture was passed through an air mill to obtain a fine powder. The powder was wetted with 19.5% water (based on the dry weight of powder) and blended until a damp free flowing powder was formed. The premix was used in the following blends with bensulfuron:

Ingredient	Trade name	% w/w
Bensulfuron methyl technical (95%)	(technical a.i.)	0.79
Propanil 80% milled premix	-	93.75
Naphthalene sulfonic acid	Galoryl DT505	0.31
Formaldehyde condensate, sodium salt		
China clay	China clay GTY	5.15

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The technical and Galoryl DT505 were blended together until uniform. The blend was then airmilled using a Gem-T airmill. The milled bensulfuron-methyl and milled propanil premixes, Galoryl MT704 and china clay were blended until uniform in a high speed blender. 17% distilled water was added whilst blending. The wetted premix (free flowing powder) was fed to a basket extruder as described in EP-A-812256 through a 1mm screen. A compacted extrudate was obtained and the resulting granules dried at 60C for 8 minutes. The dried granules were then sieved through 2mm and 500 micron sieves.

#### Example 4

Propanil and bensulfuron-methyl combined WG (75% propanil and 0.375% bensulfuron)

Ingredient	Trade name	% w/w
Bensulfuron-methyl technical (95%)	(technical a.i.)	0.39
Propanil 80% milled premix	-	93.75
Naphthalene sulfonic acid Formaldehyde condensate, sodium salt	Galoryl DT505	0.16
China clay	China clay GTY	5.70

The technical and Galoryl DT505 were blended together until uniform. The blend was then airmilled using a Gem-T airmill. The milled bensulfuron-methyl and milled propanil premixes, Galoryl MT704 and china clay were blended until uniform in a high speed blender. 17% distilled water was added whilst blending. The wetted premix (free flowing powder) was fed to a basket extruder as described in EP-A-812256 through a 1mm screen. A compacted extrudate was obtained and the resulting granules dried at 60C for 8 minutes. The dried granules were then sieved through 2mm and 500 micron sieves.

The above combination formulations were tested using the solubility method detailed in Example 1. The following data was obtained:



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Example 5Propanil and bensulfuron-methyl combined WG (75% propanil and 0.24% bensulfuron)

Ingredient	Trade name	% w/w
Bensulfuron methyl technical (95%)	(technical a.i.)	0.25
Propanil 80% milled premix	-	93.72
Naphthalene sulfonic acid Formaldehyde condensate, sodium salt	Galoryl DT505	0.10
China clay	China clay GTY	5.90

The processing method set out in Example 4 was employed, with the bensulfuron-methyl being milled as a premix with the Galoryl DT505. The solubility of the bensulfuron-methyl in the above formulation was then tested using the method set out in Example 4. The following results were obtained using 25 mgs and 31.3 mgs bensulfuron-methyl a.i./litre (in tap water).

Time (mins)	% bensulfuron-methyl active added to water that dissolved	
	Example 5 (25 mgs/L)	Example 5 (31.3 mgs/L)
5	89	91
30	90	92
60	94	92
90	93	96
120	97	95

Field Evaluation

A composition according to Example 4 was evaluated in the field in comparison with commercial formulations containing the same active ingredients

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Treatment Details

Number	Treatment Composition	Rate of use (g/Hectare) Product
Control	Untreated Control	-
1	Stam 80 EDF	4,000g at Growth Stage BBCH 12-13 8,000g at Growth Stage BBCH 21-21
2	Stam 80 EDF + Londax 60	4,000g at Growth Stage BBCH 12-13 100g at Growth Stage BBCH 12-13
3	Example 4	4,000g at Growth Stage BBCH 12-13

The above treatments were applied in 400 l water/ha on Rice *v. loto* against Gramineae family weeds. The weeds were assessed at -1, +4, +16 and +32 days after application by the efficacy assessment guidelines provided by EPPO Guidelines PP1/181(2), PP1/152(2) and 1/62(2). Stam 80 EDF is a commercial formulation containing 80% propanil in the form of an extruded granule. Londax 60 is a commercial formulation containing 60% bensulfuron-methyl in the form of a fluid bed granule.

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ResultsAssessment : 1 day before 1<sup>st</sup> Application

Weeds	Control	Treatment 1			Treatment 2			Treatment 3		
	% cov.	% cov	% eff.	Sympt.	% cov.	% eff.	Sympt.	% cov.	% eff.	Sympt.
<i>Heteranthera limosa</i>	38.0	37.0	0.0	n.a.	35.0	0.0	n.a.	35.0	0.0	n.a.
<i>Heteranthera reniformis</i>	0.0	1.0	0.0	n.a.	0.0	0.0	n.a.	0.0	0.0	n.a.
<i>Echinochloa crus-galli</i>	1.0	1.0	0.0	n.a.	1.0	0.0	n.a.	1.0	0.0	n.a.
<i>Panicum dichotomiflorum</i>	1.0	1.0	0.0	n.a.	1.0	0.0	n.a.	1.0	0.0	n.a.
<i>Scirpus maritimus</i>	1.0	1.0	0.0	n.a.	1.0	0.0	n.a.	2.0	0.0	n.a.
<i>Scirpus mucronatus</i>	1.0	1.0	0.0	n.a.	2.0	0.0	n.a.	1.0	0.0	n.a.



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Assessment : 4 days after 1<sup>st</sup> Application

Weeds	Control	Treatment 1			Treatment 2			Treatment 3		
	% cov.	% cov.	% eff.	Sympt.	% cov.	% eff.	Sympt.	% cov.	% eff.	Sympt.
<i>Heteranthera lunata</i>	55.0	55.0	70.0	WC	34.0	80.0	W	40.0	50.0	W
<i>Heteranthera reniformis</i>	0.5	0.0	0.0	na	0.6	0.0	na	0.0	0.0	na
<i>Echinochloa crus-galli</i>	7.0	0.0	0.0	na	1.0	0.0	na	1.0	0.0	na
<i>Panicum dichotomiflorum</i>	5.5	0.0	0.0	na	1.0	0.0	na	1.0	0.0	na
<i>Scirpus maritimus</i>	1.0	4.0	90.0	W	0.0	0.0	na	3.0	70.0	W
<i>Scirpus mucronatus</i>	2.0	1.0	60.0	W	2.0	60.0	W	5.0	70.0	W

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Assessment : 16 days after 1<sup>st</sup> Application

Weeds	Control	Treatment 1			Treatment 2			Treatment 3		
	% cov.	% cov.	% eff.	Sympt.	% cov.	% eff.	Sympt.	% cov.	% eff.	Sympt.
<i>Heteranthera limosa</i>	55.0	1.0	99.0	W.C.	18.0	80.0	W.C.	2.0	98.0	W
<i>Heteranthera reniformis</i>	0.0	0.0	0.0	na	0.0	0.0	na	0.0	0.0	na
<i>Echinochloa crus-galli</i>	10.0	0.0	0.0	na	1.0	0.0	na	0.0	0.0	na
<i>Panicum dichotomiflorum</i>	15.0	0.0	0.0	na	1.0	0.0	na	0.0	0.0	na
<i>Scirpus maritimus</i>	5.0	0.0	0.0	na	0.0	0.0	na	1.0	98.0	W
<i>Scirpus mucronatus</i>	15.0	0.0	0.0	na	0.0	0.0	na	0.0	0.0	na



Claims

1. A water dispersible granular agrochemical composition comprising a primary agrochemical active ingredient comprising a sulfonyl urea at a level of less than 50% by weight of the composition and a dispersing agent wherein at least one component of the composition is liquid the composition being obtainable by a process comprising preparing a wetted mix in the form of a free-flowing powder comprising the primary active ingredient and the dispersing agent and optionally other components and extruding the mix to form an extrudate and drying the extrudate to form granules.
2. A composition according to claim 1 in which the primary active is a low use rate active ingredient.
3. A composition according to any one of the preceding claims in which the active ingredient is selected from bensulfuron-methyl, chlorsulfuron, cinosulfuron, metsulfuron-methyl, nicosulfuron, pirimisulfuron-methyl, rimsulfuron, sulfometuron-methyl, thifensulfuron-methyl, and triflurosulfuron-methyl.
4. A composition according to any one of the preceding claims in which the primary active ingredient is present at a level of less than 30% by weight of the composition.
5. A composition according to any one of the preceding claims in which the active ingredient comprises bensulfuron-methyl and/or chlorsulfuron.
6. A composition according to claim 5 comprising bensulfuron-methyl at a level of less than 10% by weight of the composition.
7. A composition according to any one of the preceding claims further comprising a high use rate secondary active ingredient.
8. A composition according to claim 7 in which the secondary active ingredient is present at a level greater than the level of the primary active ingredient.
9. A composition according to any one of claims 7 or 8 in which the secondary active is present at a level of at least 30%.
10. A composition according to any one of claims 7 to 9 in which the high use rate secondary active ingredient is selected from abamectin, atrazine, benomylbentazone, bifenox, bromoxynil, captan, carbendazim, chloridazon, chlorothalonil, chlortoluron, lambda-cyhalothrin, cyhexatin, cymoxynil, alpha-cypermethrin, deltamethrin, dimethomorph, diuron, ethofumesate, fibronil, flurtamone, glyphosate, imazamethabenz-methyl, imazapyr,

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- imazethapyr, imadacloprid, isoproturon, linuron, mancozeb, maneb, metamitron, methiocarb, metribuzin, milbectin, oxadixyl, oxyfluorfen, phenmedipham, propanil, propyzamide, simazine, thifensulfuron-methyl and thiram.
11. A composition according to claim 10 in which the secondary active ingredient comprises propanil.
  12. A composition according to claim 11 in which the propanil is present at a level of at least 50% by weight of the composition.
  13. A composition according to any one of the preceding claims in which the dispersing agent comprises an anionic and/or nonionic surfactant.
  14. A composition according to claim 13 in which the dispersing agent is selected from alkali metal salts of lignosulphonates, naphthalene sulphonate formaldehyde condensates, tristyrylphenol ethoxylate phosphate esters, aliphatic alcohol ethoxylates, alkylphenol ethoxylates, ethylene oxide/propylene oxide (EO-PO) block copolymers, "comb" graft copolymers and polyvinyl alcohol-vinyl acetate copolymers.
  15. A composition according to any one of the preceding claims in which the weight ratio of dispersing agent to the low use rate primary active ingredient in the composition is 0.1 to 10:1.
  16. A composition according to claim 16 in which the weight ratio of dispersing agent to the low use rate primary active ingredient in the composition is 0.4 to 6:1.
  17. A composition according to any one of the preceding claims comprising, as the low use rate active, bensulfuron-methyl and further comprising propanil.
  18. A composition according to claim 17 in which bensulfuron-methyl is present at a level of less than 1% by weight of the composition and propanil is present at a level of more than 50% by weight of the composition.
  19. Use of a composition according any one of the preceding claims as an agrochemical.
  20. A method of treating a plant by applying a herbicidally effective amount of a composition according any one of claims 1 to 18 to the plant or to the locus of the plant to be treated.
  21. A method according to claim 20 in which the composition is mixed with a liquid carrier and applied to the plant or the locus of the plant.
  22. A method according to any one of claims 20 or 21 in which the primary active is applied to the plant or the locus of the plant at a rate of use of less than 50 g/hectare.





Applicant(s) or Patentee(s) John Misselbrook Attorney's  
Serial or Patent No. \_\_\_\_\_ Docket No. BKG-P-02-001  
Filed or Issued: \_\_\_\_\_  
For: "WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS"

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(e)) - SMALL BUSINESS CONCERN**

I hereby declare that I am

- ☐ the owner of the small business concern identified below:  
☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN AGFORM LTD  
ADDRESS OF CONCERN Maidenstone Heath, Blundell Lane, Bursledon, Southampton SO31 1AA, Great Britain

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention "WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS" by inventor JOHN MISSELBROOK

- ☒ the specification filed herewith  
☐ application Serial No. \_\_\_\_\_, filed \_\_\_\_\_  
☐ Patent No. \_\_\_\_\_, issued \_\_\_\_\_

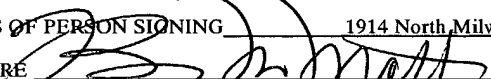
If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27).

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I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date and which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Brian M. Mattson  
TITLE OF PERSON OTHER THAN OWNER Attorney for Applicant  
ADDRESS OF PERSON SIGNING 1914 North Milwaukee Avenue, Chicago, IL 60647  
SIGNATURE  DATE 2/26/02



**DECLARATION AND POWER OF ATTORNEY**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**"WATER-DISPERSIBLE AGROCHEMICAL COMPOSITIONS"**

Case No. **BKG-P-02-001** the specification of which

☒ is attached hereto.  
(check ☐ was filed on \_\_\_\_\_, as  
one) Application Serial No. \_\_\_\_\_  
and was amended on \_\_\_\_\_  
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent Office all information which is known to me to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a)<sup>1</sup>.

I do not know and do not believe this invention was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and I believe that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as identified below:

I hereby claim foreign priority benefits under Title 35, United States Code, 119 of any foreign application(s) for patent or inventor's certificate listed below:

---

<sup>1</sup>(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of unpatentability.

A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

## Prior Foreign Application:

Number PCT/GB00/03307

Country

Date August 26, 1999

And I hereby appoint Brian M. Mattson (Reg. No. 35, 018) of the firm of Patents+TMS, A Professional Corporation as my attorney with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and direct that all correspondence be forwarded to:

Patents+TMS  
A Professional Corporation  
1914 North Milwaukee Avenue  
Chicago, IL 60647  
Telephone: 773/772-6009  
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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